

Report on GPS campaign in Albania from 05 June to 17 June of 2017

Aims :

The main aim of this fieldwork was to re-measure the network of GPS benchmarks installed in 2003 by F.Jouanne and colleagues, last measured in 2009 to derive tectonic velocities. A second objective was to install new points (i) near lake Ohrid, (ii) in the Vlora region and (iii) install a permanent station in the Karaborum peninsula. Finally, neo-tectonics exploration was planned in particular near the coast North of Durres and in the Karaborum area.

For this purpose, 10 Leica GR25 receivers together with 10 Zephyr Trimble antennas and accessories from DT Insu were imported temporary from Meudon by plane via Ulisse (CNRS). 14 external batteries were bought in Tirana and have been left in custody to the Geosciences Institut of Polytechnic University. Drillers, glue and all specific tools needed for new benchmark installations were imported from France.

Participants :

Three french researchers took part to the fieldwork : François Jouanne, Riccardo Vassallo (Isterre, U. Savoie) and Marianne Métois (U. Lyon 1). Two Albanian researchers from Univ.Polytechnic of Tirana join them : Rexhep Koçi and Edmond Dushi. The entire mission was funded on M.Métois's IMPULSION project (PALSE, Univ Lyon1) with a contribution of Albanian colleagues for oil expenses.

Sequence :

Measurements were conducted from 05 to 16 June by two teams : R.Vassallo, F.Jouanne & E.Dushi measuring the westward mainly coastal benchmarks ; R.Koçi & M.Métois measuring the easternmost part of the network. 32 benchmarks, including 5 new points, were measured on at least 48h sessions.

New benchmarks :

Name	Site	Longitude	Latitude	Alt (m)
LIN2	New Lini	41.061	20.629	792.3
ZGOS	Zgosh	41.269	20.317	748.7
ZVER	Zvernec	40.537	19.38	42.5
KUCC	Kuç	40.159	19.841	642.42
GJOR	Gjorm	40.319	19.642	181.3

EON1	New LLOG	40.196	19.590	1100.6
KANI	Kaninë	40.410	19.506	733.5

Missing benchmarks : 0604 (measured using tripod), MUSH, 0610, MIRA, LINI

Un-checked benchmarks : 0605, DAMG

One receiver stolen at KORC marker

Measurements :

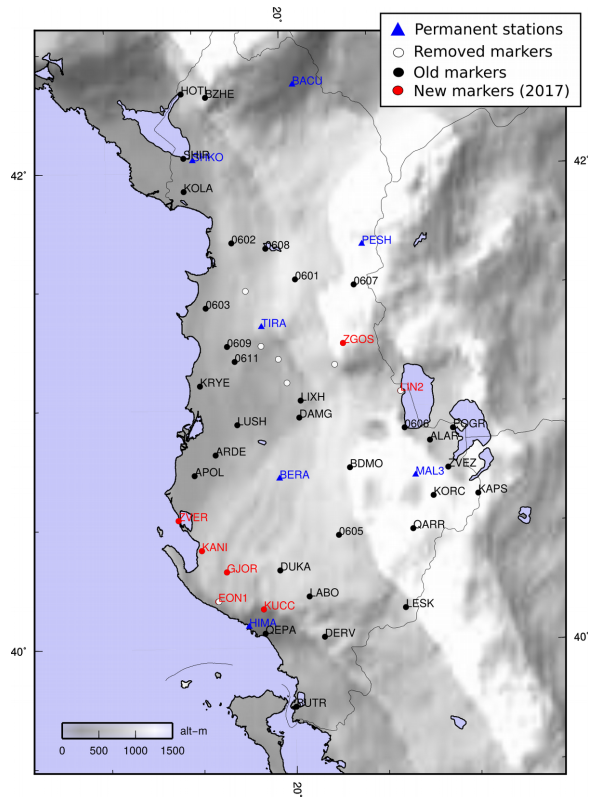
121 rinex files for ~9Go

GPS campaign 2017 : 156-167

	156	157	158	159	160	161	162	163	164	165	166	167
0601	-	-	-	X	X	X	X	-	-	-	-	-
0602	-	-	X	X	X	X	-	-	-	-	-	-
0603	X	X	X	X	-	-	-	-	-	-	-	-
0604	-	X	X	X	-	-	-	-	-	-	-	-
0606	-	-	-	-	X	X	X	-	-	-	-	-
0607	-	-	-	X	X	X	X	-	-	-	-	-
0608	-	-	X	X	X	-	-	-	-	-	-	-
0609	X	X	X	X	-	-	-	-	-	-	-	-
0611	-	X	X	X	-	-	-	-	-	-	-	-
alar	-	-	-	-	-	X	X	X	-	-	-	-
apol	-	X	X	X	X	-	-	-	-	-	-	-
arde	-	X	X	X	X	-	-	-	-	-	-	-
bdmo	-	-	-	-	-	-	X	X	X	-	-	-
butr	-	-	-	-	-	X	X	X	X	X	X	X
derv	-	-	-	-	-	-	-	X	X	X	X	X
duka	-	-	-	-	-	-	-	X	X	X	X	X
eon1	-	-	-	X	X	X	X	X	-	-	-	-
gJOR	-	-	-	-	X	X	X	X	-	-	-	-
kani	-	-	X	X	X	X	-	-	-	-	-	-
kaps	-	-	-	-	-	-	-	X	X	X	-	-
krye	-	X	X	X	X	-	-	-	-	-	-	-
kucc	-	-	-	-	X	X	X	X	-	-	-	-
labo	-	-	-	-	-	-	-	X	X	X	X	X
lesk	-	-	-	-	-	-	-	X	X	X	-	-
lin2	-	-	-	-	X	X	X	X	-	-	-	-
lixh	-	X	X	X	X	-	-	-	-	-	-	-
pogr	-	-	-	-	-	-	X	X	X	-	-	-
qarr	-	-	-	-	-	-	-	X	X	X	-	-
qepa	-	-	-	-	-	X	X	X	X	X	-	-
zgos	-	-	-	X	X	X	X	-	-	-	-	-
zver	-	-	X	X	X	X	-	-	-	-	-	-
zvez	-	-	-	-	-	-	-	X	X	X	-	-

Coordinates & network map:

NAME	LAT°	LONG°	Z(m)
601	41,5429	20,0598	283,1710
602	41,7007	19,7057	135,4999
603	41,4282	19,5535	59,3005
604	41,2651	19,8591	240,4909
605	40,4648	20,2645	450,5338
606	40,9083	20,6461	950,2569
607	41,5153	20,3880	602,2651
608	41,6750	19,8965	268,8494
609	41,2655	19,6689	120,8063
610	41,1085	19,9987	616,3274
611	41,2027	19,7097	160,3443
612	41,4980	19,7796	435,0893
ALAR	40,8520	20,7836	1028,1750
APOL	40,7257	19,4748	129,3875
ARDE	40,8113	19,5941	224,3052
BDMO	40,7479	20,3355	467,9490
BUTR	39,7498	20,0055	103,0035
BZHE	42,3168	19,5757	633,7860
DAMG	40,9622	20,0633	202,8513
DERV	40,0391	20,1710	258,6788
DUKA	40,3223	19,9363	455,2269
EON1	40,1968	19,5910	1100,6030
GJOR	40,3192	19,6429	181,3249
HOTI	42,3329	19,4367	55,1852
KANI	40,4102	19,5067	733,5477
KAPS	40,6226	21,0404	1078,5925
KOLA	41,9206	19,4440	67,4314
KORC	40,6191	20,7935	1062,2150
KUCC	40,1600	19,8413	642,4213
KRYE	41,1015	19,5148	188,1406
LABO	40,2094	20,0922	222,9566
LESK	40,1532	20,6199	1069,2907
LINI	41,0626	20,6313	795,4454
LIXH	41,0329	20,0723	200,5693
LLOG	40,1967	19,5954	730,9992
LUSH	40,9367	19,7179	176,5511
MIRA	41,1811	20,2682	317,6452
MUSH	41,2097	19,9536	541,6779
PESH	48,8143	2,2180	219,6493
POGR	40,9009	20,9146	920,9106
QARR	40,4822	20,6747	1224,0308
QEPA	40,0581	19,8472	94,9210
RRAD	48,8142	2,2180	218,7207
SHIR	42,0611	19,4442	67,8589
ZVER	40,5380	19,3807	42,5464
ZVEZ	40,7358	20,8794	1129,1282
ZGOS	41,2696	20,3178	748,7493
LIN2	41,0620	20,6292	792,3836



Point	type	mheigh	heigh	recepteur	récepteurSN	antennatype	antenne	embase	DOYinstall	DOYdesinstall
0601	marker	0.000	0.000	LEICA GR25	1830488	TRM41249.00	60103895	-	160	164
0602	marker	0.000	0.000	LEICA GR25	1830487	TRM41249.00	-	-	158	161
0603	marker	0.000	0.000	LEICA GR25	1830494	TRM41249.00	-	-	156	159
0604	tripod	1.2835	1.2279	LEICA GR25	1830488	TRM41249.00	60103895	51	157	159
0606	marker	0.000	0.000	LEICA GR25	1830490	TRM41249.00	60061102	-	161	163
0607	marker	0.000	0.000	LEICA GR25	1830486	TRM41249.00	60103895	-	159	162
0608	marker	0.000	0.000	LEICA GR25	1830490	TRM41249.00	60061102	-	158	160
0609	marker	0.000	0.000	LEICA GR25	1831259	TRM41249.00	-	-	156	159
0611	marker	0.000	0.000	LEICA GR25	1830486	TRM41249.00	60247690	-	157	159
ALAR	marker	0.000	0.000	LEICA GR25	1830486	TRM41249.00	60247690	-	162	164
APOL	marker	0.000	0.000	LEICA GR25	1831270	TRM41249.00	60103895	-	157	160
ARDE	marker	0.000	0.000	LEICA GR25	1831265	TRM41249.00	60103895	-	157	160
BDMO	marker	0.000	0.000	LEICA GR25	1830491	TRM41249.00	60103895	-	163	165
BUTR	marker	0.000	0.000	LEICA GR25	1831259	TRM41249.00	-	-	162	167
DERV	marker	0.000	0.000	LEICA GR25	1831270	TRM41249.00	-	-	164	167
DUKA	marker	0.000	0.000	LEICA GR25	1831265	TRM41249.00	-	-	164	167
EON1	marker	0.000	0.000	LEICA GR25	1831265	TRM41249.00	-	-	160	164
GJOR	marker	0.000	0.000	LEICA GR25	1831266	TRM41249.00	-	-	161	164
KANI	marker	0.000	0.000	LEICA GR25	1830494	TRM41249.00	-	-	159	162
KAPS	marker	0.000	0.000	LEICA GR25	1830487	TRM41249.00	60178003	-	164	166
KRYE	marker	0.000	0.000	LEICA GR25	1831266	TRM41249.00	-	-	157	160
KUCC	marker	0.000	0.000	LEICA GR25	1831270	TRM41249.00	-	-	161	164
LABO	marker	0.000	0.000	LEICA GR25	1831266	TRM41249.00	-	-	164	167
LESK	marker	0.000	0.000	LEICA GR25	1830491	TRM41249.00	60061102	-	165	167
LIN2	marker	0.000	0.000	LEICA GR25	1830487	TRM41249.00	-	-	161	164
LIXH	marker	0.000	0.000	LEICA GR25	1830491	TRM41249.00	60147572	-	157	160
POGR	marker	0.000	0.000	LEICA GR25	1830490	TRM41249.00	60061102	-	163	165
QARR	marker	0.000	0.000	LEICA GR25	1830490	TRM41249.00	60147572	-	165	167
QEPA	marker	0.000	0.000	LEICA GR25	1830494	TRM41249.00	-	-	162	166
ZGOS	marker	0.000	0.000	LEICA GR25	1830491	TRM41249.00	60147572	-	160	163
ZVER	marker	0.000	0.000	LEICA GR25	1831259	TRM41249.00	-	-	159	162
ZVEZ	marker	0.000	0.000	LEICA GR25	1830486	TRM41249.00	60247690	-	164	166

Other :

Permanent seismic stations of Pogradec (photo) and Leskovic were inspected due to connection issues.



Neotectonics (R.Vassallo) :

In Karaborum region we observed an active normal fault, oriented N115°E, over a minimum length of ~10 km. A continuous tectonic scarp of several meters high in the limestones

indicates a Holocene activity, with mainly dip movement. From a morphological point of view, despite its kinematics within a compressional context, this fault appears as the clearest active tectonic structure along the Albanian coast.

In the Durrës and Kavajë region we observed large scale and local scale morphologies suggesting active, even if slow, uplift of a N-S anticline, with reverse faults on both flanks of it (pop up structure?). Faults are buried under the piedmont sediments (few meters? tens of meters?). Sub-surface imagery would be helpful for a better localization of the most recent ruptures in the light of a possible paleoseismological study.